

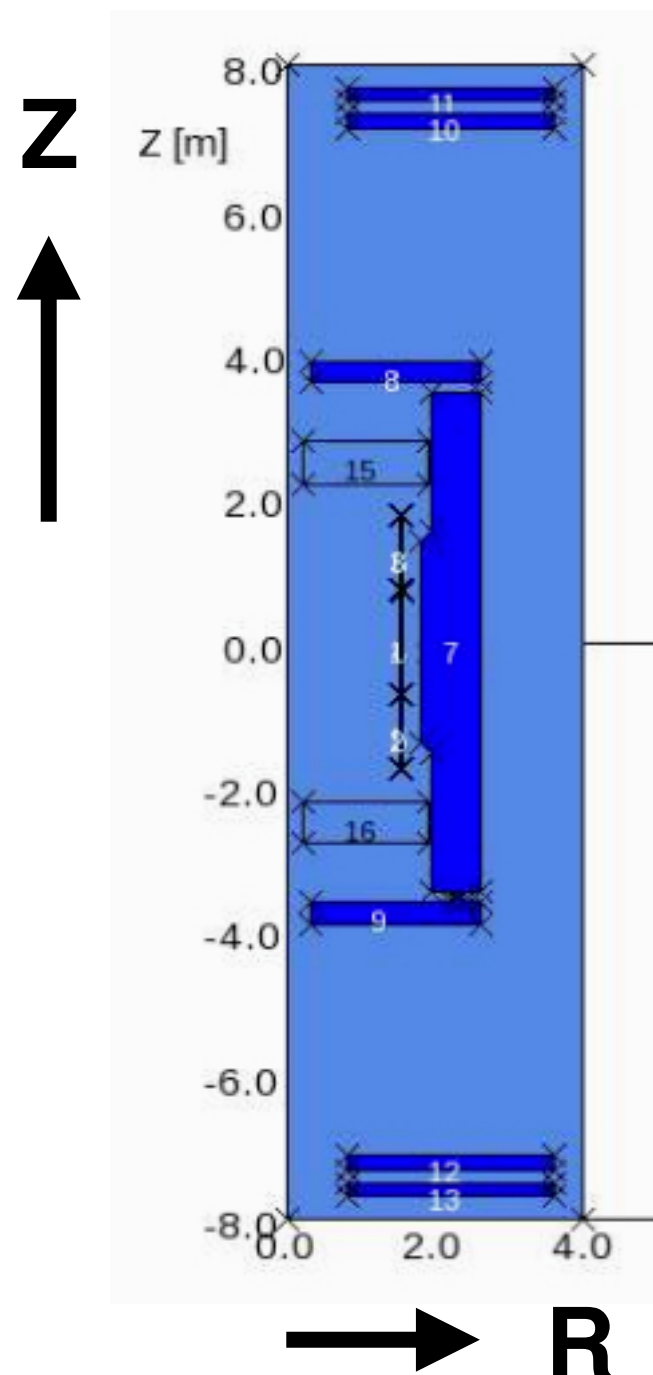
sPHENIX Magnet door thickness 30cm versus 19cm

A.Franz
03/01/2017

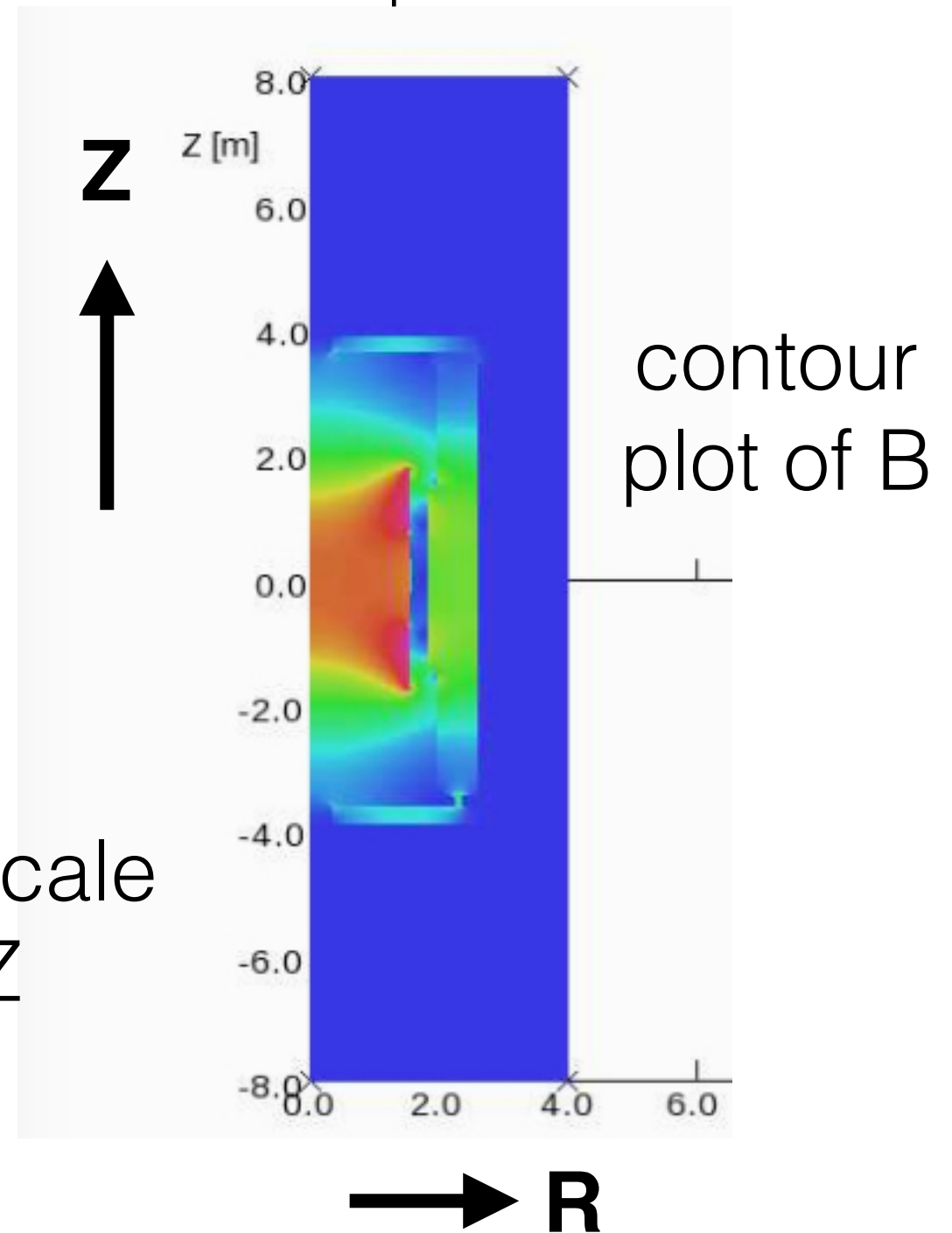
2D Opera simulation, ϕ symmetric

R:Z in 1:1 scale as illustration

steel is in dark blue, coils are in red
areas 15 and 16 are from another test and set to air
areas 10-13 are two PHENIX MuID absorber panels



next plots
has different scale
for R and Z

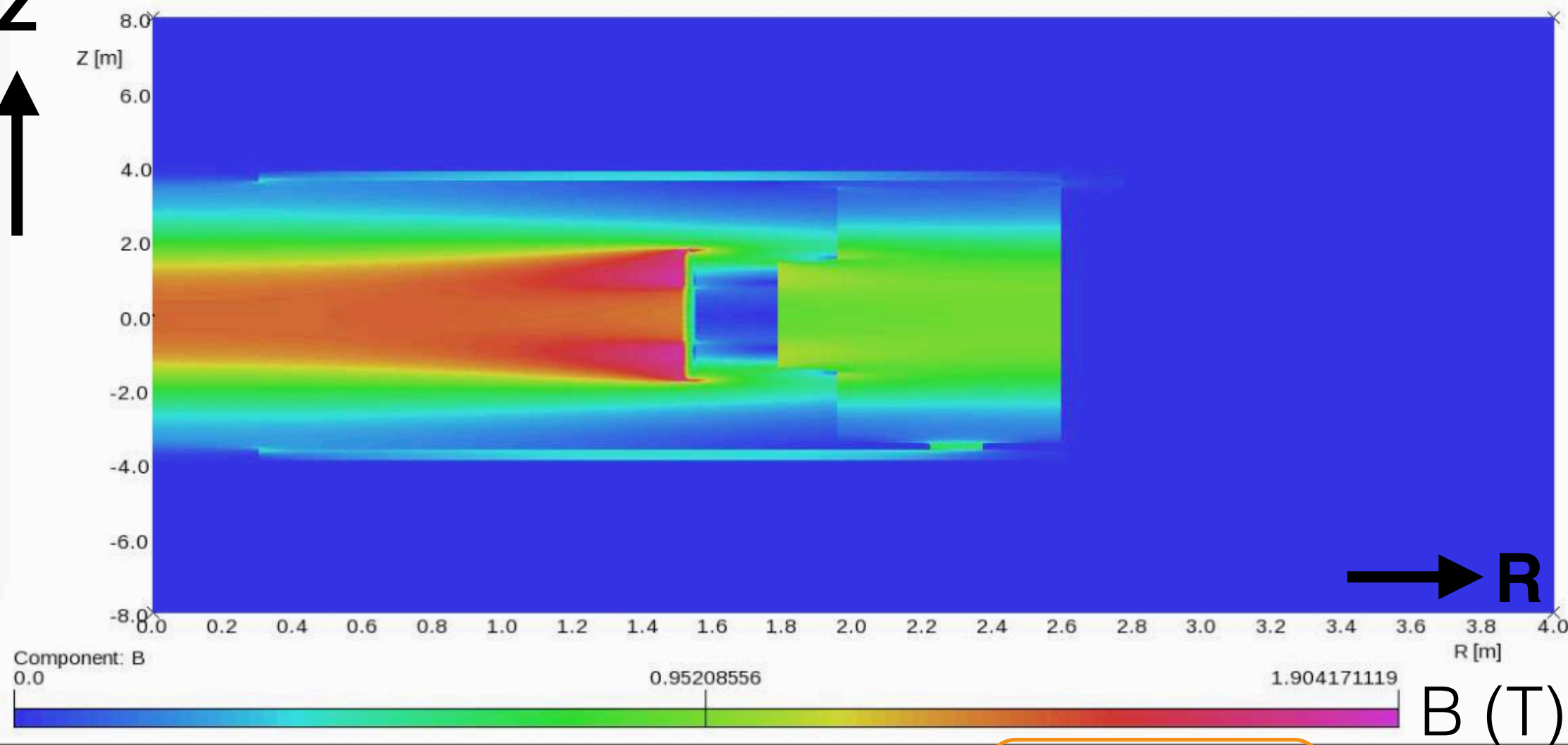


steel is in dark blue, coils are in red
areas 15 and 16 are from another test and set to air
areas 10-13 are two PHENIX MuID absorber panels



Field with 30cm door
 $B(0,0) = 1.38\text{T}$

Z
↑



UNITS	
Length	: m
Magn Flux Density	: T
Magnetic Field	: A/m
Magn Vector Pot	: Wb/m
Current Density	: A/m ²
Conductivity	: S/m
Power	: W
Force	: N
Energy	: J
Mass	: kg
Pressure	: Pa

MODEL DATA
/data/home/afranz/BaBar/b
PHENIX_wuzheng.st
Quadratic elements
Axi-symmetry
Modified R*vec pot.
Magnetic fields
Static solution
Scale factor: 1.0
386442 elements
773985 nodes
16 regions

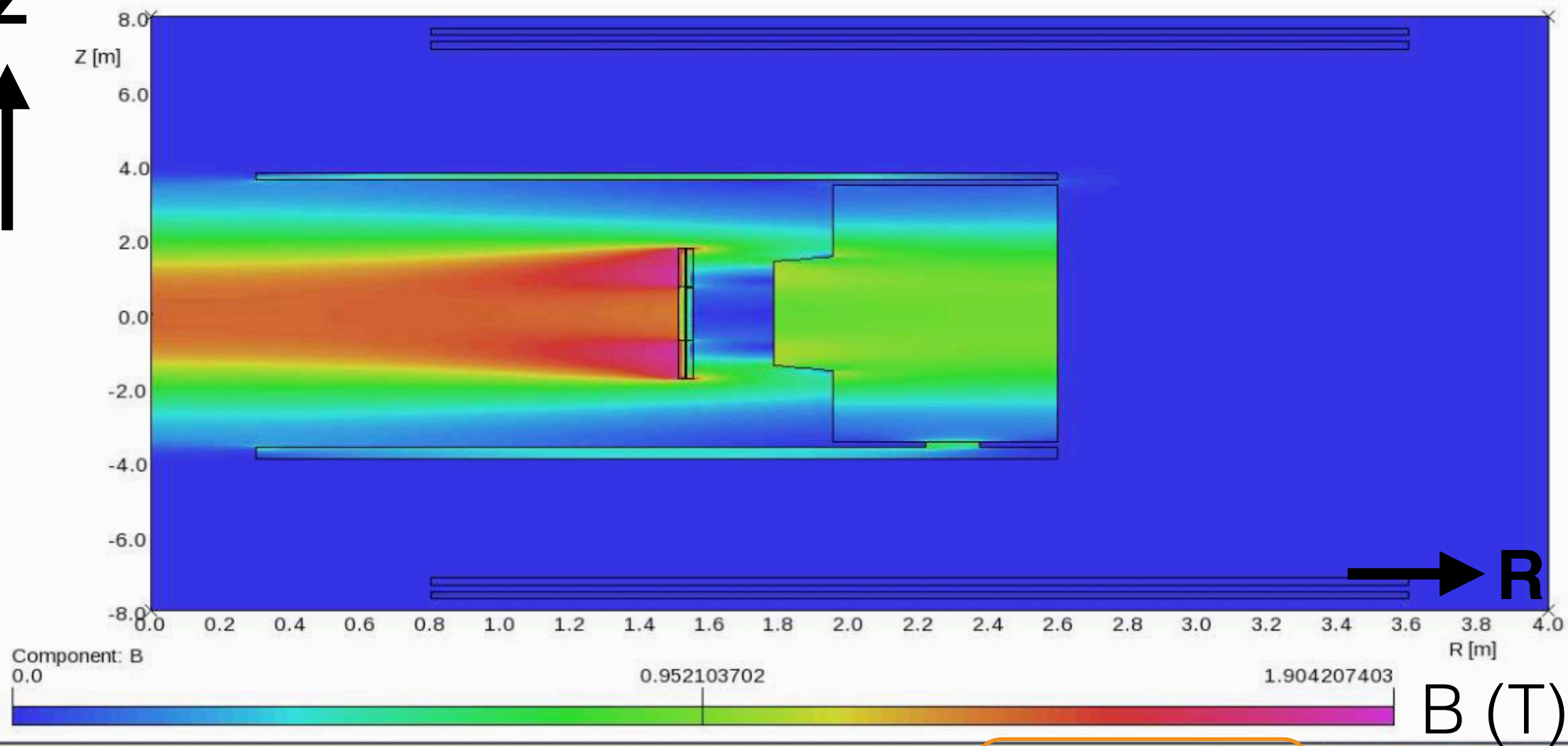
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opera
simulation software

At (0.0,0.0) B = 1.3841536303333

Field with 19cm door
 $B(0,0) = 1.38\text{T}$

Z



UNITS	
Length	: m
Magn Flux Density	: T
Magnetic Field	: A/m
Magn Vector Pot	: Wb/m
Current Density	: A/m ²
Conductivity	: S/m
Power	: W
Force	: N
Energy	: J
Mass	: kg
Pressure	: Pa

MODEL DATA
 /data/home/afranz/BaBar/b
 PHENIX_wuzheng.st
 Quadratic elements
 Axi-symmetry
 Modified R*vec pot.
 Magnetic fields
 Static solution
 Scale factor: 1.0
 385184 elements
 771469 nodes
 16 regions

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opera
 simulation software

At (0.0,0.0) B = 1.38415157975047

At (0.0,0.0) B = 1.38415157975047

opera
 simulation software

B-Field in T

door edge with 30cm thick door

inner edge
of the door
($R=30\text{cm}$)

UNITS	
Length	: m
Magn Flux Density	: T
Magnetic Field	: A/m
Magn Vector Pot	: Wb/m
Current Density	: A/m ²
Conductivity	: S/m
Power	: W
Force	: N
Energy	: J
Mass	: kg
Pressure	: Pa

MODEL DATA
/data/home/afranz/BaBar/b
PHENIX_wuzheng.st
Quadratic elements
Axi-symmetry
Modified R*vec pot.
Magnetic fields
Static solution
Scale factor: 1.0
386442 elements
773985 nodes
16 regions

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Component: B
2.14196E-05

0.549226882

1.098432344

opera
simulation software

B-Field in T

door edge with 19cm thick door

